

SEQUENCE LISTING

<110> Cahoon, Edgar B.
Kinney, Anthony J.
Cahoon, Rebecca E.

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<150> 60/110,602

<151> 1998-12-02

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Pro Ser Asp Asp Val Gly Ala Pro Ala Asp Val Arg Asp Arg Ile Asp
50 55 60
Ser Val Val Asn Asp Asp Ala Gln Gly Thr Ala Asn Leu Ala Gly Asp
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85 90 95
Gly Arg Gly Asn Ala Asp Ala Thr Phe Thr Tyr Arg Pro Ser Val Pro
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Ala His Arg Arg Ala Arg Glu Ser Pro Leu Ser Ser Asp Ala Ile Phe
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Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu Met Lys Tyr Gly Trp
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165 170 175
Pro Leu Phe Met Cys Trp Ile Ser Leu Ser Ile Phe Pro Leu Ala Ala
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195 200 205
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Val Tyr Val Thr Leu Arg Cys Asp Ser Ala Phe Leu Ser Gly Val Thr
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Cys Ile Arg Lys Gly Trp Val Ala Arg Gln Phe Ala Lys Leu Val Ile
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420 425 430

Thr Leu Ala Ile Ile Ile Ala Phe Leu Val Ser Ala Val Phe His Glu
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Leu Cys Ile Ala Val Pro Cys Arg Leu Phe Lys Leu Trp Ala Phe Leu
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Gly Ile Met Phe Gln Val Pro Leu Val Phe Ile Thr Asn Tyr Leu Gln
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Glu Arg Phe Gly Ser Thr Val Gly Asn Met Ile Phe Trp Phe Ile Phe
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Phe Asn Asn Leu Val Ser Asp Pro Ala Thr Thr Cys Phe His Ile Leu
35 40 45

Phe Thr Thr Phe Glu Ile Val Tyr Pro Val Leu Val Ile Leu Lys Cys
50 55 60

Asp Ser Ala Val Leu Ser Gly Phe Val Leu Met Phe Ile Ala Cys Ile
65 70 75 80

Val Trp Leu Lys Leu Val Ser Phe Ala His Thr Asn His Asp Ile Gly
85 90 95

Lys Leu Ile Thr Ser Gly Lys Lys Val Asp Asn Glu Leu Thr Ala Ala
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Gly Ile Asp Asn Leu Gln Xaa Pro Thr Leu Gly Ser Leu Thr Tyr Phe
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Lys Met Ala Pro Thr Leu Cys Tyr Gln Ala Lys Val Ile Leu Arg Thr
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Pro Tyr Val Arg Lys Gly Trp Leu Val Arg Gln Val Ile Leu Tyr Leu
145 150 155 160

Ile Phe Thr Gly Leu Gln Gly Phe Ile Ile Glu Gln Tyr Ile Asn Pro
165 170 175

Ile Val Val Asn Ser Gln His Pro Leu Met Gly Gly Leu Leu Asn Ala
180 185 190

Val Glu Thr Val Leu Lys Leu Ser Leu Pro Asn Val Tyr Leu Trp Leu
195 200 205

Cys Met Phe Tyr Cys Leu Phe His Leu Trp Leu Asn Ile Leu Ala Glu
210 215 220

Ile Leu Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala
225 230 235 240

Lys Thr Ile Asp Glu Tyr Trp Arg Lys Trp Asn Met Pro Val His Lys
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Trp Ile Val Arg His Ile Tyr Phe Pro Cys Met Arg Asn Gly Ile Ser
260 265 270

Lys Glu Val Ala Val Phe Ile Ser Phe Phe Val Ser Ala Val Leu His
275 280 285

Glu Tyr Val Leu Leu Phe Leu His Ile Leu Lys Phe Trp Ala Phe Leu
290 295 300

Gly Ile Met Leu Gln Ile Pro Leu Ile Leu Thr Ser Tyr Leu Lys
305 310 315 320

Asn Lys Phe Ser Asp Thr Met Val Gly Asn Met Ile Phe Trp Phe Phe
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Phe Cys Ile Tyr Gly Gln Pro Met Cys Val Leu Leu Tyr Tyr His Asp
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Val Met Asn Arg Thr Glu Lys Ala Lys
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<213> Zea mays

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Ile Val Val Asn Ser Gln His Pro Leu Met Gly Gly Leu Leu Asn Ala
 35 40 45

Val Glu Thr Val Leu Lys Leu Ser Leu Pro Asn Val Tyr Leu Trp Leu
 50 55 60

Cys Met Phe Tyr Cys Leu Phe His Leu Trp Leu Asn Ile Leu Ala Glu
 65 70 75 80

Ile Leu Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala
 85 90 95

Lys Thr Ile Asp Glu Tyr Trp Arg Lys Trp Asn Met Pro Val His Lys
 100 105 110

Trp Ile Val Arg His Ile Tyr Phe Pro Cys Met Arg Asn Gly Ile Ser
 115 120 125

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Glu Leu Gln Ile Thr Trp Met Lys Cys Ser Ile
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<213> Zea mays

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Leu Ala Phe Asn Asn Leu Val Ser Asp Pro Ala Thr Thr Cys Phe His
35 40 45
Ile Leu Phe Thr Thr Phe Glu Ile Val Tyr Pro Val Leu Val Ile Leu
50 55 60
Lys Cys Asp Ser Ala Val Leu Ser Gly Phe Val Leu Met Phe Ile Ala
65 70 75 80
Cys Ile Val Trp Leu Lys Leu Val Ser Phe Ala His Thr Asn His Asp
85 90 95
Ile Arg Lys Leu Ile Thr Ser Gly Lys Lys Val Asp Asn Glu Leu Thr
100 105 110
Ala Ala Gly Ile Asp Asn Leu Gln Ala Pro Thr Leu Gly Ser Leu Thr
115 120 125
Tyr Phe Met Met Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg
130 135 140
Thr Pro Tyr Val Arg Lys Gly Trp Leu Val Arg Gln Val Ile Leu Tyr
145 150 155 160
Leu Ile Phe Thr Gly Leu Gln Gly Phe Ile Ile Glu Gln Tyr Ile Asn
165 170 175
Pro Ile Val Val Asn Ser Gln His Pro Leu Met Gly Gly Leu Leu Asn
180 185 190
Ala Val Glu Thr Val Leu Lys Leu Ser Leu Pro Asn Val Tyr Leu Trp
195 200 205
Leu Cys Met Phe Tyr Cys Leu Phe His Leu Trp Leu Asn Ile Leu Ala
210 215 220
Glu Ile Leu Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn

225

230

235

240

Ala Lys Thr Ile Asp Glu Tyr Trp Arg Lys Trp Asn Met Pro Val His
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Lys Trp Ile Val Arg His Ile Tyr Phe Pro Cys Met Arg Asn Gly Ile
260 265 270

Ser Lys Glu Val Ala Val Phe Ile Ser Phe Phe Val Ser Ala Val Leu
275 280 285

His Glu Val Thr Tyr Leu Leu Phe His Ser Ser Ser Ala Tyr Ile Asn
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Phe Val Gln Thr Tyr Gln Leu
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35 40 45

Ser Leu Val Tyr Phe Met Leu Ala Pro Thr Leu Cys Tyr Gln Pro Thr
50 55 60

Tyr Pro Gln Thr Thr Cys Ile Arg Lys Gly Trp Val Thr Gln Gln Leu
65 70 75 80

Ile Lys Cys Val Val Phe Thr Gly Leu Met Gly Phe Ile Ile Glu Gln
85 90 95

Tyr Ile Asn Pro Ile Val Lys Asn Ser Lys His Pro Leu Lys Gly Asn
100 105 110

Phe Leu Asn Ala Ile Glu Arg Val Leu Lys Leu Ser Val Pro Thr Leu
115 120 125

Tyr Val Trp Leu Cys Met Phe Tyr Cys Phe Phe His Leu Trp Leu Asn
130 135 140

Ile Val Ala Xaa Leu Leu Cys Phe Gly Asp Arg Glu Phe Tyr Lys Asp

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Pro Val His Lys Trp Ile Ile Arg His Ile Tyr Phe Pro Cys Ile Arg			
180	185	190	
Xaa Gly Phe Ser Arg Gly Val Ala Ile Leu Ile Ser Phe Leu Val Ser			
195	200	205	
Ala Val Phe His Glu Ile Cys Ile Ala Val Pro Cys His Ile Phe Lys			
210	215	220	
Phe Trp Ala Phe Ser Gly Ile Met Phe Gln Ile Pro Leu Val Phe Leu			
225	230	235	240
Thr Arg Tyr Leu His Ala Thr Phe Lys His Val Met Val Gly Asn Met			
245	250	255	
Ile Phe Trp Phe Phe Ser Ile Val Arg Gln Pro Met Xaa Cys Leu Tyr			
260	265	270	
Asn Xaa His Asp Val Met Lys Gln Ala Arg Pro Ser Lys			
275	280	285	
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<211> 254			
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<213> Oryza sativa			
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tttcaaccta tgcattgttgc ttctagttgc agtgaacagc aggcttatta tcgagaactt 180			
aatgaagtat ggcttattaa taagagctgg gttttggttt aatgataaat cattgcggga 240			
ctggccactt ctaa 254			
<210> 12			
<211> 80			
<212> PRT			
<213> Oryza sativa			
<400> 12			
Ala Tyr Gly Gly Gly Asp Phe Ser Ala Phe Thr Phe Arg Ala Ala Ala			
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Pro Val His Arg Lys Ala Lys Glu Ser Pro Leu Ser Ser Asp Ala Ile			
20	25	30	
Phe Lys Gln Ser His Ala Gly Leu Phe Asn Leu Cys Ile Val Val Leu			
35	40	45	
Val Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu Met Lys Tyr Gly			
50	55	60	
Leu Leu Ile Arg Ala Gly Phe Trp Phe Asn Asp Lys Ser Leu Arg Asp			
65	70	75	80
<210> 13			
<211> 1587			

<212> DNA

<213> Oryza sativa

<400> 13

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caggcctttt caacctatgc attgttgc tagttgcagt gaacagcagg cttattatcg 180
agaacttaat gaagtatggc ttattaataa gagctgggtt ttggtttaat gataaatcat 240
tgccggactg gccacttcta atgtgttgc ttgtctgcc tgcttcccc ctgggtgcat 300
ttgcagttga aaagttggca tttacaatg ttattactga tgctgttgct acctgcctcc 360
atatcttcctt ttcacaacc gaaattgtat atccagtgtc tttgttctt aagtgtgatt 420
ctgcagtttt gtctggcttt ttgttgcattttt tttttttttt tttttttttt 480
tatcttttgc acataacaac catgatataa ggcaactgac catggcgcc aagaaggttt 540
ataatgaact aagcacagtt gacatggata attacaacc tccaaacttta gggaaatctaa 600
tataacttcattt gatggctcctt acactctgtt atcagccaaatg ctatccccga acttcatgtg 660
tttagaaaagg ttggctgatt cgtcaaaatttt tttttttttt tttttttttt 720
gcttcattttt tgagcaatac ataaatccaa ttgttgcattttt tttttttttt 780
gaggactcctt aaatgtgtt gggactctc attaccaatg tttttttttt 840
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gattttggta ccgtgaattt tttttttttt tttttttttt tttttttttt 960
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tccatgagat atgtgtcgctt gttttttttt tttttttttt tttttttttt 1140
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caatgggttgg caacatgata tttttttttt tttttttttt tttttttttt 1260
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agccataaaaaa cagcatgattt tttttttttt tttttttttt tttttttttt 1440
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ataagcatctt gtcattttttt tttttttttt tttttttttt tttttttttt 1560
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<210> 14

<211> 500

<212> PRT

<213> Oryza sativa

<400> 14

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Ala Gly Gly Pro Arg Arg Arg Ala Gly Gln Leu Arg Gly Arg Leu Arg
20 25 30

Asp Glu Ala Ala Pro Gly Ser Pro Pro Arg Pro Arg Pro Arg Pro Arg
35 40 45

Pro Arg Gly Gly Asp Ser Asn Gly Arg Ser Val Leu Arg Pro Gly Gly
50 55 60

Gly Gly Gly Arg Gly Gly Asp Phe Ser Ala Phe Thr Phe Arg
65 70 75 80

Ala Ala Ala Pro Val His Arg Lys Ala Lys Glu Ser Pro Leu Ser Ser
85 90 95

Asp Ala Ile Phe Lys Gln Ser His Ala Gly Leu Phe Asn Leu Cys Ile
100 105 110

Val Val Leu Val Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu Met
115 120 125

Lys Tyr Gly Leu Leu Ile Arg Ala Gly Phe Trp Phe Asn Asp Lys Ser
130 135 140

Leu Arg Asp Trp Pro Leu Leu Met Cys Cys Leu Ser Leu Pro Ala Phe
145 150 155 160

Pro Leu Gly Ala Phe Ala Val Glu Lys Leu Ala Phe Asn Asn Val Ile
165 170 175

Thr Asp Ala Val Ala Thr Cys Leu His Ile Phe Leu Ser Thr Thr Glu
180 185 190

Ile Val Tyr Pro Val Leu Val Ile Leu Lys Cys Asp Ser Ala Val Leu
195 200 205

Ser Gly Phe Leu Leu Ile Phe Ile Ala Cys Ile Val Trp Leu Lys Leu
210 215 220

Val Ser Phe Ala His Thr Asn His Asp Ile Arg Gln Leu Thr Met Gly
225 230 235 240

Gly Lys Lys Val Asp Asn Glu Leu Ser Thr Val Asp Met Asp Asn Leu
245 250 255

Gln Pro Pro Thr Leu Gly Asn Leu Ile Tyr Phe Met Met Ala Pro Thr
260 265 270

Leu Cys Tyr Gln Pro Ser Tyr Pro Arg Thr Ser Cys Val Arg Lys Gly
275 280 285

Trp Leu Ile Arg Gln Ile Ile Leu Tyr Leu Ile Phe Thr Gly Leu Gln
290 295 300

Gly Phe Ile Ile Glu Gln Tyr Ile Asn Pro Ile Val Val Asn Ser Gln
305 310 315 320

His Pro Leu Lys Gly Gly Leu Leu Asn Ala Val Glu Thr Val Leu Lys
325 330 335

Leu Ser Leu Pro Asn Val Tyr Leu Trp Leu Cys Met Phe Tyr Ala Phe
340 345 350

Phe His Leu Trp Leu Ser Ile Leu Ala Glu Ile Leu Arg Phe Gly Asp
355 360 365

Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala Lys Thr Ile Asp Glu Tyr
370 375 380

Trp Arg Lys Trp Asn Met Pro Val His Lys Trp Val Val Arg His Ile
385 390 395 400

Tyr Phe Pro Cys Met Arg Asn Gly Ile Ser Lys Glu Val Ala Val Leu
405 410 415

Ile Ser Phe Leu Val Ser Ala Val Leu His Glu Ile Cys Val Ala Val
420 425 430

Pro Cys Arg Ile Leu Lys Phe Trp Ala Phe Leu Gly Ile Met Leu Gln
435 440 445

Ile Pro Leu Ile Val Leu Thr Ala Tyr Leu Lys Ser Lys Phe Arg Asp
450 455 460

Thr Met Val Gly Asn Met Ile Phe Trp Phe Phe Phe Cys Ile Tyr Gly
465 470 475 480

Gln Pro Met Cys Leu Leu Leu Tyr Tyr His Asp Val Met Asn Arg Ile
485 490 495

Glu Lys Ala Arg
500

<210> 15
<211> 1942
<212> DNA
<213> Glycine max

<210> 16
<211> 504
<212> PRT
<213> Glycine max

<400> 16
Met Ala Ile Ser Asp Glu Pro Glu Ser Val Ala Thr Ala Leu Asn His
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Ser Ser Leu Arg Arg Arg Pro Ser Ala Thr Ser Thr Ala Gly Leu Phe
20 25 30

Asn Ser Pro Glu Thr Thr Asp Ser Ser Gly Asp Asp Leu Ala Lys
35 40 45

Asp Ser Gly Ser Asp Asp Ser Ile Asn Ser Asp Asp Ala Ala Val Asn
50 55 60

Ser Gln Gln Gln Asn Glu Lys Gln Asp Thr Asp Phe Ser Val Leu Lys
65 70 75 80

Phe Ala Tyr Arg Pro Ser Val Pro Ala His Arg Lys Val Lys Glu Ser
85 90 95

Pro Leu Ser Ser Asp Thr Ile Phe Arg Gln Ser His Ala Gly Leu Phe
100 105 110

Asn Leu Cys Ile Val Val Leu Val Ala Val Asn Ser Arg Leu Ile Ile
115 120 125

Glu Asn Leu Met Lys Tyr Gly Trp Leu Ile Lys Ser Gly Phe Trp Phe
130 135 140

Ser Ser Lys Ser Leu Arg Asp Trp Pro Leu Phe Met Cys Cys Leu Ser
145 150 155 160

Leu Val Val Phe Pro Phe Ala Ala Phe Ile Val Glu Lys Leu Ala Gln
165 170 175

Arg Lys Cys Ile Pro Glu Pro Val Val Val Leu His Ile Ile Ile
180 185 190

Thr Ser Thr Ser Leu Phe Tyr Pro Val Leu Val Ile Leu Arg Cys Asp
195 200 205

Ser Ala Phe Val Ser Gly Val Thr Leu Met Leu Phe Ser Cys Val Val
210 215 220

Trp Leu Lys Leu Val Ser Tyr Ala His Thr Asn Tyr Asp Met Arg Ala
225 230 235 240

Leu Thr Lys Leu Val Glu Lys Gly Glu Ala Leu Leu Asp Thr Leu Asn
245 250 255

Met Asp Tyr Pro Tyr Asn Val Ser Phe Lys Ser Leu Ala Tyr Phe Leu
260 265 270

Val Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg Thr Pro Tyr
275 280 285

Ile Arg Lys Gly Trp Leu Phe Arg Gln Leu Val Lys Leu Ile Ile Phe
290 295 300

Thr Gly Val Met Gly Phe Ile Ile Asp Gln Tyr Ile Asn Pro Ile Val
305 310 315 320

Gln Asn Ser Gln His Pro Leu Lys Gly Asn Leu Leu Tyr Ala Thr Glu
325 330 335

Arg Val Leu Lys Leu Ser Val Pro Asn Leu Tyr Val Trp Leu Cys Met

340

345

350

Phe Tyr Cys Phe Phe His Leu Trp Leu Asn Ile Leu Ala Glu Leu Leu
355 360 365

Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala Lys Thr
370 375 380

Val Glu Asp Tyr Trp Arg Met Trp Asn Met Pro Val His Lys Trp Met
385 390 395 400

Ile Arg His Leu Tyr Phe Pro Cys Leu Arg His Gly Leu Pro Lys Ala
405 410 415

Ala Ala Leu Leu Ile Ala Phe Leu Val Ser Ala Leu Phe His Glu Leu
420 425 430

Cys Ile Ala Val Pro Cys His Ile Phe Lys Leu Trp Ala Phe Gly Gly
435 440 445

Ile Met Phe Gln Val Pro Leu Val Leu Ile Thr Asn Tyr Leu Gln Asn
450 455 460

Lys Phe Arg Asn Ser Met Val Gly Asn Met Ile Phe Trp Phe Ile Phe
465 470 475 480

Ser Ile Leu Gly Gln Pro Met Cys Val Leu Leu Tyr Tyr His Asp Leu
485 490 495

Met Asn Arg Lys Gly Lys Leu Asp
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<210> 17

<211> 470

<212> DNA

<213> Glycine max

<220>

<221> unsure

<222> (372)

<223> n = a, c, g, or t

<220>

<221> unsure

<222> (424)

<223> n = a, c, g, or t

<220>

<221> unsure

<222> (442)

<223> n = a, c, g, or t

<220>

<221> unsure

<222> (446)

<223> n = a, c, g, or t

<220>

<221> unsure

<222> (469)

<223> n = a, c, g, or t

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cgccccgagac gaccaccgac agttccgggtg atgacttggc caaggattcc ggttccgacg 180
actccatcag cagcgacgccc gccaattcgc aaccgcaaca aaaacaagac actgatttct 240
ccgtcctcaa attcgctac cgtccttccg tccccgctca tcgcaaagtg aaggaaagtc 300
cgctcagctc ccgacacccat tttccgtcag aagtcaacgc gggccttcc aacccctgt 360
atagtaagtc cttgttgctg tgaataagcc gactcatcat tgagaatttt aaatgaaata 420
tggnttgggt tcatcaaattc cnggcnttt gggtaagct caaagtcant 470

<210> 18
<211> 38
<212> PRT
<213> Glycine max

<400> 18
Asp Phe Ser Val Leu Lys Phe Ala Tyr Arg Pro Ser Val Pro Ala His
1 5 10 15

Arg Lys Val Lys Glu Ser Pro Leu Ser Ser Asp Thr Ile Phe Val Arg
20 25 30

Ser His Ala Gly Pro Leu
35

<210> 19
<211> 646
<212> DNA
<213> *Triticum aestivum*

<220>
<221> unsure
<222> (240)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (311)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (337)
<223> n = a, c, g, or t

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<222> (431)
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<222> (435)
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<220>
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<222> (463)
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<222> (486)
<223> n = a, c, g, or t

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<221> unsure
<222> (503)
<223> n = a, c, g, or t

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<221> unsure
<222> (540)
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<223> n = a, c, g, or t

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<221> unsure
<222> (616)
<223> n = a, c, g, or t

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<222> (633)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (639)
<223> n = a, c, g, or t

<400> 19

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agctgggttt tggtttaagt gcaagatcgc tgggagattg gccacttctg atgtgctgcc 180
tcactttacc cattttccca cttgctgctc tcataccggc agaattgggt caaaagaaan 240
tcatccgtgg atcatgtgtc tatacctcccc catataatta ttacaaccac tgccttatac 300
ctatccgtgtc ntgtgatcct taaagtgtga accacantat atcctgggtt gtgnnttatgt 360
ccattgcaan atacttgggt gancttgncc cttttgctcc atacaattag atataagtat 420
tgnccccaaa ntatngaaag ggtgctacac agggattcta ccnagaagaa aattaaagcc 480
caactncaac aagtgtgtat cangttggcc caacactggt acaaccaatt taccggcan 540
attatanaaaa ggtggtcacc ggaactataa aagtgtatcc aagcttatgg ctcaaatggc 600
ataataacca ttgganatca acacatgacg aantttgnc atgaaa 646

<210> 20
<211> 39
<212> PRT
<213> Triticum aestivum

<400> 20
Ser Asp Ala Ile Phe Arg Gln Ser His Ala Gly Leu Leu Asn Leu Cys
1 5 10 15

Ile Val Val Leu Ile Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu
20 25 30

Met Lys Tyr Gly Leu Leu Ile
35

<210> 21
<211> 1975
<212> DNA
<213> Triticum aestivum

<220>
<221> unsure
<222> (93)
<223> n = a, c, g, or t

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gcgcgacggtc cacggagagg cggcgcatgg agcagccgca gcggcacgac gagatgcct 360
gctaccgggc gtcggcgccg cccaccgcgg ggtcaaggag agcccgccta gctccgacgc 420
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cattttccca cttgctgctc tcataccggc gaagtgggtt caaagaaagc tcataccgtga 660
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tgtgattctt aagtgtgaat cagcagtatt atctggattt gtgttaatgt tcattgcac 780
cattacttgg ttgaagcttgc tctcttttgc tcataccaaat tatgtatccaa ggatattgtc 840
ccaaaagtatt gaaaagggtt ctacacatgg cagttcttgc gatgaggaaa acattaaagg 900
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tattcttagcc gaactcctcc gttttgggtga tcgtgaattt tacaaggact ggtggaaacgc 1260
caaaaacagttt gaagagtttactt ggagaatgtt gaaatgcctt gttcataatgtt ggtatcgatc 1320
acatataatataat tttccatgca taaggaatgg cttatcaaag ggttgcgc ttctcatcg 1380

atttctggtt tcagctgtat ttcatgagct atgtattgct gttccgtgcc acatttcaa 1440
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tcaagataag ttcaagaata caatggtggg caacatgata ttttggttct tcttcagcat 1560
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gcccggggca atggaggggc ggcctcctta atgttccgc atgggctgtt agagcttgct 1740
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cgttccaaat gtatgatatg cccggccgggg tgtgtaccga agataccca gtgatgaagc 1860
cgaagataac acgacccgtcc acatgtgtt tgtgtatacg ttccgggtca tgtgccagca 1920
gagttacgta cgtgatgccc tggttggatataa aaaaatgtacg tgccgtatga aaaaa 1975

<210> 22

<211> 508

<212> PRT

<213> Triticum aestivum

<400> 22

Met Ser Lys Gly Asn Pro Asp Pro His Leu Pro Gly Ser Phe Leu Pro
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Ser His Gly Gly Pro Pro Pro Lys Pro Lys Thr Pro Pro Arg Thr Phe
20 25 30

Arg Asn Leu Pro Ser Ser Ser Thr His Gly Pro Ala Pro Ser Val Ala
35 40 45

Ala Ala Thr Ile Ala Thr Thr Pro Pro Ser Ala Ser Ala Ala Pro Leu
50 55 60

Pro Pro Thr Val His Gly Glu Ala Ala His Gly Ala Ala Ala Ala Ala
65 70 75 80

Arg Arg Asp Ala Leu Leu Pro Gly Val Gly Ala Ala His Arg Arg Val
85 90 95

Lys Glu Ser Pro Leu Ser Ser Asp Ala Ile Phe Arg Gln Ser His Ala
100 105 110

Gly Leu Leu Asn Leu Cys Ile Val Val Leu Ile Ala Val Asn Ser Arg
115 120 125

Leu Ile Ile Glu Asn Leu Met Lys Tyr Gly Leu Leu Ile Arg Ala Gly
130 135 140

Phe Trp Phe Ser Ala Arg Ser Leu Gly Asp Trp Pro Leu Leu Met Cys
145 150 155 160

Cys Leu Thr Leu Pro Ile Phe Pro Leu Ala Ala Leu Met Thr Glu Lys
165 170 175

Trp Ala Gln Arg Lys Leu Ile Arg Asp His Val Ser Ile Leu Leu His
180 185 190

Ile Ile Ile Thr Thr Val Leu Ile Tyr Pro Val Val Val Ile Leu
195 200 205

Lys Cys Glu Ser Ala Val Leu Ser Gly Phe Val Leu Met Phe Ile Ala
210 215 220

Ser Ile Thr Trp Leu Lys Leu Val Ser Phe Ala His Thr Asn Tyr Asp
225 230 235 240

Ile Arg Ile Leu Ser Gln Ser Ile Glu Lys Gly Ala Thr His Gly Ser
245 250 255

Ser Ile Asp Glu Glu Asn Ile Lys Gly Pro Thr Ile Asn Ser Val Val
260 265 270

Tyr Phe Met Leu Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg
275 280 285

Thr Ala Phe Ile Arg Lys Gly Trp Val Thr Arg Gln Leu Ile Lys Cys
290 295 300

Val Val Phe Thr Gly Leu Met Gly Phe Ile Ile Glu Gln Tyr Ile Asn
305 310 315 320

Pro Ile Val Gln Asn Ser Lys His Pro Leu Asn Gly Asn Phe Leu Asp
325 330 335

Ala Ile Glu Arg Val Leu Lys Leu Ser Val Pro Thr Leu Tyr Val Trp
340 345 350

Leu Cys Met Phe Tyr Ser Phe Phe His Leu Trp Leu Asn Ile Leu Ala
355 360 365

Glu Leu Leu Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn
370 375 380

Ala Lys Thr Val Glu Glu Tyr Trp Arg Met Trp Asn Met Pro Val His
385 390 395 400

Lys Trp Ile Val Arg His Ile Tyr Phe Pro Cys Ile Arg Asn Gly Leu
405 410 415

Ser Lys Gly Cys Ala Ile Leu Ile Ala Phe Leu Val Ser Ala Val Phe
420 425 430

His Glu Leu Cys Ile Ala Val Pro Cys His Ile Phe Lys Leu Trp Ala
435 440 445

Phe Ser Gly Ile Met Phe Gln Ile Pro Leu Leu Phe Leu Thr Lys Tyr
450 455 460

Leu Gln Asp Lys Phe Lys Asn Thr Met Val Gly Asn Met Ile Phe Trp
465 470 475 480

Phe Phe Phe Ser Ile Val Gly Gln Pro Met Cys Val Leu Leu Tyr Tyr
485 490 495

His Asp Val Met Asn Arg Gln Ala Gln Thr Asn Gly
500 505

<210> 23
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer
<400> 23

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<210> 24			
<211> 33			
<212> DNA			
<213> Artificial Sequence			
<220>			
<223> Description of Artificial Sequence:PCR primer			
<400> 24			
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<210> 25			
<211> 497			
<212> PRT			
<213> Mus musculus			
<400> 25			
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Arg Val Ser Val Gln Gly Gly Ser Gly Pro Lys Val Glu Glu Asp Glu			
20	25	30	
Val Arg Asp Ala Ala Val Ser Pro Asp Leu Gly Ala Gly Gly Asp Ala			
35	40	45	
Pro Ala Pro Ala Pro Ala Pro Ala His Thr Arg Asp Lys Asp Gly Arg			
50	55	60	
Thr Ser Val Gly Asp Gly Tyr Trp Asp Leu Arg Cys His Arg Leu Gln			
65	70	75	80
Asp Ser Leu Phe Ser Ser Asp Ser Gly Phe Ser Asn Tyr Arg Gly Ile			
85	90	95	
Leu Asn Trp Cys Val Val Met Leu Ile Leu Ser Asn Ala Arg Leu Phe			
100	105	110	
Leu Glu Asn Leu Ile Lys Tyr Gly Ile Leu Val Asp Pro Ile Gln Val			
115	120	125	
Val Ser Leu Phe Leu Lys Asp Pro Tyr Ser Trp Pro Ala Pro Cys Val			
130	135	140	
Ile Ile Ala Ser Asn Ile Phe Val Val Ala Ala Phe Gln Ile Glu Lys			
145	150	155	160
Arg Leu Ala Val Gly Ala Leu Thr Glu Gln Met Gly Leu Leu Leu His			
165	170	175	
Val Val Asn Leu Ala Thr Ile Ile Cys Phe Pro Ala Ala Val Ala Leu			
180	185	190	
Leu Val Glu Ser Ile Thr Pro Val Gly Ser Val Phe Ala Leu Ala Ser			
195	200	205	
Tyr Ser Ile Met Phe Leu Lys Leu Tyr Ser Tyr Arg Asp Val Asn Leu			
210	215	220	

Trp Cys Arg Gln Arg Arg Val Lys Ala Lys Ala Val Ser Thr Gly Lys
225 230 235 240

Lys Val Ser Gly Ala Ala Ala Gln Gln Ala Val Ser Tyr Pro Asp Asn
245 250 255

Leu Thr Tyr Arg Asp Leu Tyr Tyr Phe Ile Phe Ala Pro Thr Leu Cys
260 265 270

Tyr Glu Leu Asn Phe Pro Arg Ser Pro Arg Ile Arg Lys Arg Phe Leu
275 280 285

Leu Arg Arg Val Leu Glu Met Leu Phe Phe Thr Gln Leu Gln Val Gly
290 295 300

Leu Ile Gln Gln Trp Met Val Pro Thr Ile His Asn Ser Met Lys Pro
305 310 315 320

Phe Lys Asp Met Asp Tyr Ser Arg Ile Ile Glu Arg Leu Leu Lys Leu
325 330 335

Ala Val Pro Asn His Leu Ile Trp Leu Ile Phe Phe Tyr Trp Phe Phe
340 345 350

His Ser Cys Leu Asn Ala Val Ala Glu Leu Leu Gln Phe Gly Asp Arg
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Glu Phe Tyr Arg Asp Trp Trp Asn Ala Glu Ser Val Thr Tyr Phe Trp
370 375 380

Gln Asn Trp Asn Ile Pro Val His Lys Trp Cys Ile Arg His Phe Tyr
385 390 395 400

Lys Pro Met Leu Arg His Gly Ser Ser Lys Trp Val Ala Arg Thr Gly
405 410 415

Val Phe Leu Thr Ser Ala Phe Phe His Glu Tyr Leu Val Ser Val Pro
420 425 430

Leu Arg Met Phe Arg Leu Trp Ala Phe Thr Ala Met Met Ala Gln Val
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Pro Leu Ala Trp Ile Val Gly Arg Phe Phe Gln Gly Asn Tyr Gly Asn
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Ala Ala Val Trp Val Thr Leu Ile Ile Gly Gln Pro Val Ala Val Leu
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Met Tyr Val His Asp Tyr Tyr Val Leu Asn Tyr Asp Ala Pro Val Gly
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Gly Gly Glu Phe Val Asp Leu Asp Arg Leu Arg Arg Arg Lys Ser Arg
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Ser Asp Ser Ser Asn Gly Leu Leu Leu Ser Gly Ser Asp Asn Asn Ser
35 40 45

Pro Ser Asp Asp Val Gly Ala Pro Ala Asp Val Arg Asp Arg Ile Asp
50 55 60

Ser Val Val Asn Asp Asp Ala Gln Gly Thr Ala Asn Leu Ala Gly Asp
65 70 75 80

Asn Asn Gly Gly Asp Asn Asn Gly Gly Arg Gly Gly Glu
85 90 95

Gly Arg Gly Asn Ala Asp Ala Thr Phe Thr Tyr Arg Pro Ser Val Pro
100 105 110

Ala His Arg Arg Ala Arg Glu Ser Pro Leu Ser Ser Asp Ala Ile Phe
115 120 125

Lys Gln Ser His Ala Gly Leu Phe Asn Leu Cys Val Val Val Leu Ile
130 135 140

Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu Met Lys Tyr Gly Trp
145 150 155 160

Leu Ile Arg Thr Asp Phe Trp Phe Ser Ser Arg Ser Leu Arg Asp Trp
165 170 175

Pro Leu Phe Met Cys Cys Ile Ser Leu Ser Ile Phe Pro Leu Ala Ala
180 185 190

Phe Thr Val Glu Lys Leu Val Leu Gln Lys Tyr Ile Ser Glu Pro Val
195 200 205

Val Ile Phe Leu His Ile Ile Thr Met Thr Glu Val Leu Tyr Pro
210 215 220

Val Tyr Val Thr Leu Arg Cys Asp Ser Ala Phe Leu Ser Gly Val Thr
225 230 235 240

Leu Met Leu Leu Thr Cys Ile Val Trp Leu Lys Leu Val Ser Tyr Ala
245 250 255

His Thr Ser Tyr Asp Ile Arg Ser Leu Ala Asn Ala Ala Asp Lys Ala
260 265 270

Asn Pro Glu Val Ser Tyr Tyr Val Ser Leu Lys Ser Leu Ala Tyr Phe
275 280 285

Met Val Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg Ser Ala
290 295 300

Cys Ile Arg Lys Gly Trp Val Ala Arg Gln Phe Ala Lys Leu Val Ile
305 310 315 320

Phe Thr Gly Phe Met Gly Phe Ile Ile Glu Gln Tyr Ile Asn Pro Ile
325 330 335

Val Arg Asn Ser Lys His Pro Leu Lys Gly Asp Leu Leu Tyr Ala Ile
340 345 350

Glu Arg Val Leu Lys Leu Ser Val Pro Asn Leu Tyr Val Trp Leu Cys
355 360 365

Met Phe Tyr Cys Phe Phe His Leu Trp Leu Asn Ile Leu Ala Glu Leu
370 375 380

Leu Cys Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala Lys
385 390 395 400

Ser Val Gly Asp Tyr Trp Arg Met Trp Asn Met Pro Val His Lys Trp
405 410 415

Met Val Arg His Ile Tyr Phe Pro Cys Leu Arg Ser Lys Ile Pro Lys
420 425 430

Thr Leu Ala Ile Ile Ala Phe Leu Val Ser Ala Val Phe His Glu
435 440 445

Leu Cys Ile Ala Val Pro Cys Arg Leu Phe Lys Leu Trp Ala Phe Leu
450 455 460

Gly Ile Met Phe Gln Val Pro Leu Val Phe Ile Thr Asn Tyr Leu Gln
465 470 475 480

Glu Arg Phe Gly Ser Thr Val Gly Asn Met Ile Phe Trp Phe Ile Phe
485 490 495

Cys Ile Phe Gly Gln Pro Met Cys Val Leu Leu Tyr Tyr His Asp Leu
500 505 510

Met Asn Arg Lys Gly Ser Met Ser
515 520